

Using the Houston Police Department’s “My City-Recent Crime” Web Mapping Application

Lee A Graham, PhD
Planning and Development Department/GISTD
City of Houston
611 Walker St, 6th Floor
Houston, TX 77002
LeeGraham@cityofhouston.net

About the Application

The My City – Recent Crime application is a web-based mapping application that was designed to allow its users to view and search out recent crime data for the City of Houston (COH). “Recent crime” data are defined as incidents occurring over the past 30 days for seven offense types. There are four violent offense types (Murder, Rape, Aggravated Assault, and Robbery) and 3 non-violent offense types (Burglary, Theft, and Auto Theft). These data are compiled by the Houston Police Department (HPD) each day. Upon entering HPD’s crime site (<http://mycity.houstontx.gov/crime>), the user is required to read and accept the terms in a disclaimer relating to the data. The text of this disclaimer is included as Appendix A of this How-To document, and the reader is asked to review it in the event that he/she has questions about the nature of the recent crime data.

Two primary search tools are implemented to allow users to search the recent crime data. The “Crime by Area” tool allows user to select an offense type, time frame (Last day reported, Last 7 days reported, or Last 30 days reported), and/or an “area” filter (Police Division, Police District, Police Beat, City Council District, Zip Code, or Super Neighborhood) to tabulate and show the crime incidents that match the specified search criteria. The “Crime By Address” tool allows the user to enter an address and search radius around that address in order to search out incidents of a specified offense type and time frame. Two additional tools exist to allow the user to view the locations and contact information for HPD’s station and storefront offices.

The geographic information systems (GIS) data are provided by the City of Houston’s enterprise Geographic Information System (GIS) hosted by Planning and Development Department’s Geographic Information System Technology Division (GISTD) or our mapping software vendor, ESRI. The recent crime data are pushed to the enterprise GIS system from HPD’s database each morning.

Application Requirements

The application is currently available on the Internet at the following URL (<http://mycity.houstontx.gov/crime>). This URL takes the user to the main HPD crime site. The user is able to read a message from the Police Chief and click a button to enter the site. The user is then presented with a disclaimer page. When the user clicks the “I Accept” button acknowledging their acceptance of the disclaimer, he/she is presented with an Options page. To get to the recent crime mapping application,

the user clicks on the “Click” button for the Recent Crime portion of the Options page. To get the Monthly UCR portion of the crime site, the user clicks the “Click” button for the Monthly UCR Crime portion of the Options page.

To run the Recent Crime mapping application, one must have a machine with an Internet connection and a browser that meets the following requirements:

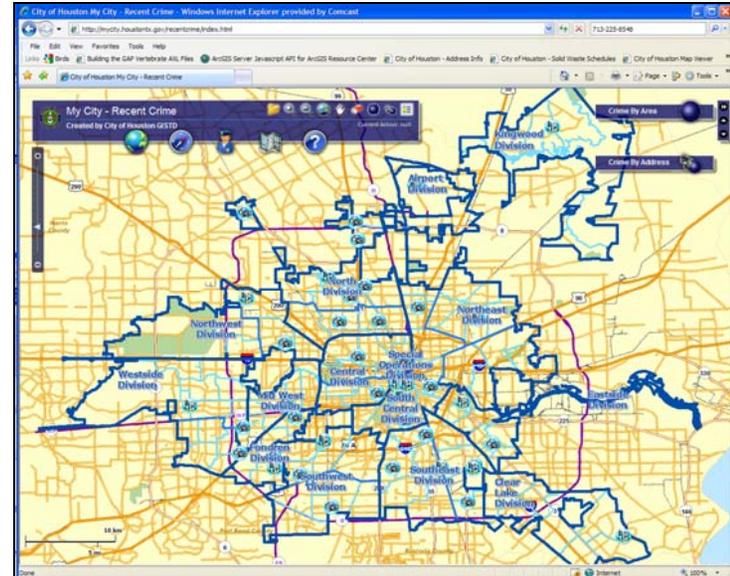
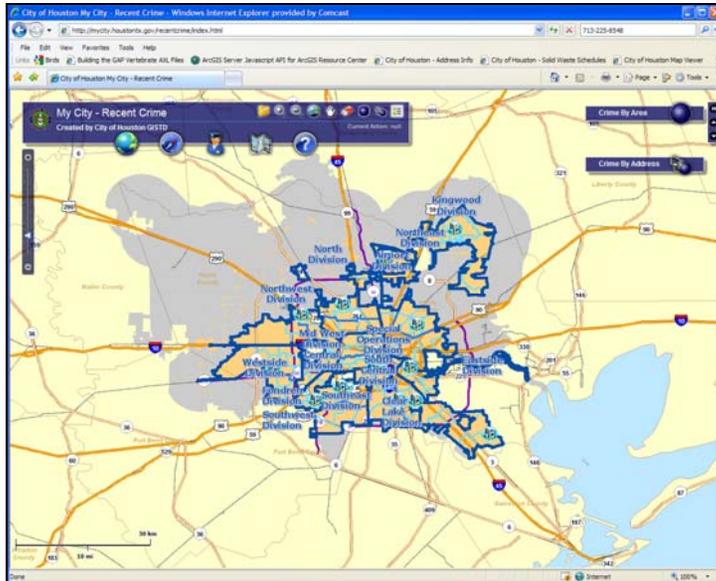
- Internet Explorer 7.0 or higher, or
 - a recent version of Firefox, Safari, or Opera (Google Chrome is currently being tested),
- and**
- the appropriate Adobe Flash Player plug-in (9.x or higher).

Most computers will already have the Flash Player installed. Typically, the application does a check to see if the correct version of the Flash Player is installed. If not, the user will be prompted to download and install it.

In general, if the user is not using an appropriate browser version or you do not have an appropriate version of the Adobe Flash Player installed, the application will not load properly. The user may see the menus and tools load, but a gray screen where the map should be. If the browser is not able to issue a prompt indicating the need to install the Adobe Flash Player, or if the automated install process does not see to work for some reason (browser security settings, anti-virus software issues, etc.), the user can navigate to the Adobe site (<http://get.adobe.com/flashplayer/>) to download and install the Flash software manually.

Using the Application

When the Recent Crime mapping application loads, he/she will see a screen similar to one of the following images. The initial scale of the map will depend on how much browser real estate is available. The initial map display shows the COH Street Map as the background map, with the HPD Divisions, labeled by name, are outlined in navy blue. HPD District boundaries are also show in a lighter sky blue, but these are not labeled by name at the initial map scales. The legend for the HPD-related components of the map is show between the two possible first initial displays to add the user in identifying these data.



Main Controller Menu



The Main Controller menu appears in the top left portion of the browser window. It contains shortcut icons the user can click to access commonly-used tools on its top right. There are also five larger icons on the center, bottom portion of the controller menu that are used to access menu items. By moving one's mouse over the larger icon, the menus will expand so that a selection can be made.



The first "Globe" icon triggers the "Map Menu", which allows the user to change background maps, load a menu to turn on and off various HPD map layers using the Live Maps tool, load an overview map, print, etc.

 COH Street Map	The COH Street Map background map (the default background map) is made visible.
 COH Aerial Map (2008)	The COH Aerial Map (2008) background map is made visible. These are aerial photographs taken circa January, 2008.
 ESRI Street Map	The ESRI Street Map background map is made visible (this map is provided by our GIS software vendor). Some features may be outdated (wrong names, missing, etc.).
 ESRI Satellite Map	The ESRI Satellite Map background map is made visible. This is an aerial map made of satellite and aerial image from circa 2006.
 Live Maps	The Live Maps tool will be opened. A table of contents will be shown that allows the user to turn on/off the HPD data offense, station, storefront, and boundary layers.
 Overview Map	The Overview Map tool will be opened, showing a inset map with the current map extent of the main map window indicated as a red rectangle.
 Bookmarks	The Bookmarks tool will be opened. This tool allows the user to save bookmarks for specific areas of interest. They are specific to that one computer and user.
 Print	The Print tool will open to allow the user to print the map.



The second “Compass” icon provides access to the Navigation tools and the Clear Graphics tool (these are more easily accessed from the smaller shortcut menu buttons on the top right portion of the Main Controller menu).

 Zoom In	The user will be able to zoom in on an area by drawing a rubber band box on an area of interest on the map..
 Zoom Out	The user will be able to zoom out around an an area of interest on the map by drawing a rubber band box on the portion of the map that is at the center of that area of interest.
 Full Extent	The map will zoom to its full extent.
 Pan/Re-center Map	The user can re-center the map by using the hand tool to drag the map in the desired direction.
 Clear Graphics	This tool will clear any graphics (highlighted address, search areas, highlighted offenses from search operations) from the map.



The third “HPD Tools” icon provides access to special tools for interacting with HPD data such as recent crime and station and storefront locations. The two main HPD Tools (“Crime By Area” and “Crime By Address”) are pre-loaded in their minimized state at application start-up. These two tools can also be accessed by the shortcut menu.

 Crime By Area	<p>The Crime By Area tool will be opened (at application startup, this tool is open on the top right of the window, but in its minimized state). There is a shortcut menu tool for accessing this tool.</p>
 Crime By Address	<p>The Crime By Address tool will be opened (at application startup, this tool is also open in its minimized state). There is a shortcut menu tool for accessing this tool.</p>
 Legend	<p>The Legend tool will open to show the map legend. There is a shortcut menu tool for accessing this tool.</p>
 Police Stations	<p>The Police Station tool will open. This tool will show a list of all the police stations and their addresses. The user can click on a row to zoom to that station.</p>
 Police Storefronts	<p>The Police Storefronts tool will open. This tool will show a list of all the police storefronts and their addresses. The user can click on a row to zoom to that storefront.</p>
 Draw	<p>The Draw tool allows the user to draw on and/or annotate the map if he/she desired.</p>



The fourth “HPD Layers” icon provides a quick way to simply turn on or off the different Offense map layers for the entire 30 day period. Each of the first eight selections acts as a toggle. If the offense type is already drawn on the map, it will be removed. If it is not shown on the map, it will be shown on the map.

 All Offenses	<p>All offenses for the last 30 days reported will be drawn on or removed from the map.</p>
 Murder	<p>All murder incidents for the last 30 days reported will be drawn on or removed from the map.</p>
 Rape	<p>All rape incidents for the last 30 days reported will be drawn on or removed from the map.</p>
 Aggravated Assault	<p>All aggravated assault incidents for the last 30 days reported will be drawn on or removed from the map.</p>
 Robbery	<p>All robbery incidents for the last 30 days reported will be drawn on or removed from the map.</p>
 Burglary	<p>All burglary incidents for the last 30 days reported will be drawn on or removed from the map.</p>
 Theft	<p>All theft incidents for the last 30 days reported will be drawn on or removed from the map.</p>
 Auto Theft	<p>All auto theft incidents for the last 30 days reported will be drawn on or removed from the map.</p>
 All Off	<p>All incidents of all types will be removed from the map.</p>



The fifth “Help” icon provides access to special tools that HPD may find useful. These include the Hydrants tool, a Locate tool (for typing in an address and locating it), a Legend tool, and a Draw tool (for adding one’s own annotations and text to the map).

	<p>This document will open in or else the user will be prompted to download or save it (if Acrobat Reader or a similar application is not installed on the user’s computer).</p>
	<p>HPD’s home page will load in a new window or tab.</p>
	<p>The City of Houston home page will load in a new window or tab.</p>
	<p>The About tool provides information on the team that developed the application, support contacts, and another rendering of the disclaimer.</p>

Shortcut Menu Items



The shortcut menu provides quick access to commonly used tools. These are (from left to right) Live Maps, Zoom In, Zoom Out, Pan/Re-center Map, Clear Graphics, Crime by Area, Crime by Address, and Legend.

Zoom Slider



The zoom slider on the left side of the map can be used for basic navigation (zoom in/zoom out). Click on either the + icon at the top of the slider to zoom in. Click on the – icon at the bottom of the slider to zoom out. Alternatively, click on the slider triangle and drag to the desired zoom level.

HPD Layers Menu: Showing Offenses for the Last 30 Days Reported

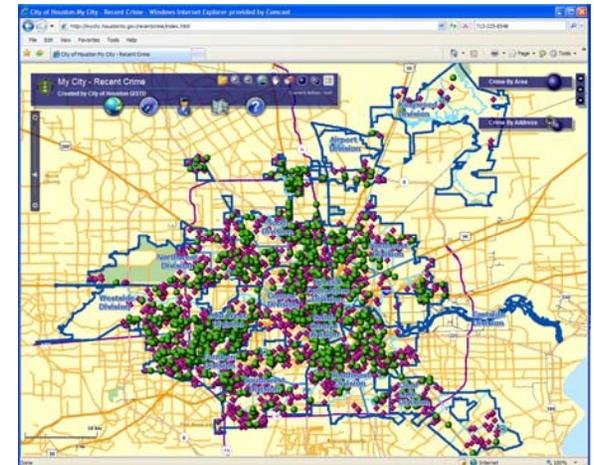
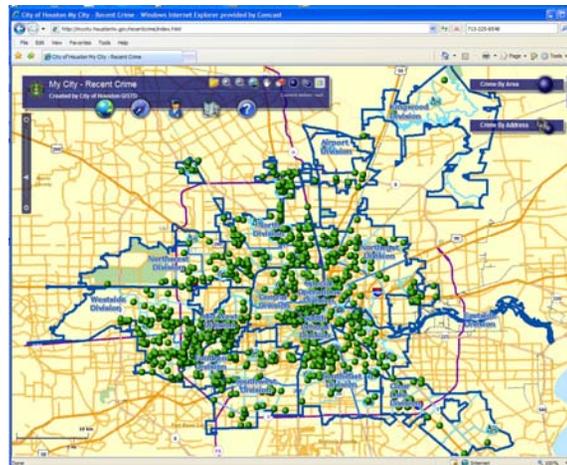


Use the selections in the HPD Layers menu to get a quick view all offenses of particular type (or all offenses of all types) for the 30 day report period. Move the mouse over the menu icon in the Main Controller menu to expand the menu to show the selection. Each selection acts as a toggle. If the offense type selection has already been activated and the incidents for that type are show on the map, choosing that selection will turn them off. If they are not already shown on the map, they will be turned on.

Activate the menu with a mouse over the  icon.

Select one of the offense types.

Sequentially, select as many other offense types as desired.



To toggle any offense type map layer off once it is visible on the map, select that offense type from the menu a second time. To turn all of the offense selections off, select the “All Off” selection from the HPD Layers Menu.

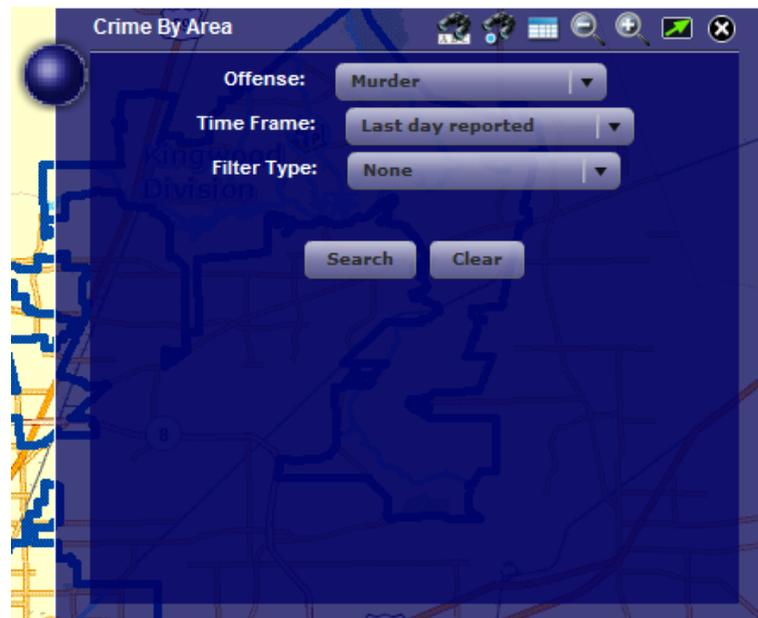
Crime by Area Tool

The “Crime by Area” tool allows users to search out incidents for an area. The default search uses no filter, which means that the incidents for the selected offense type and time frame are shown for the entire City. The tool is most effective when used with a filter to limit the search to a Police Division, District, or Beat, Zip Code, City Council District, or Super Neighborhood.

When the application first loads, the Crime By Area search tool appears in its minimized state in the top right corner of the window.



To use it, maximize the tool by clicking on blue sphere icon. The tool will open up and appear as seen below.



The tool opens is set up with 3 panes: a Conditional Search pane (the one seen above), a Graphical Search pane, and a Results Pane.

One the can switch between the different panes using the first three icons that appear on the top right portion of the tool.



The first icon  switches to the Conditional Search pane. The second icon  switches to the graphical search pane. The third icon  switches to the Results pane.

The additional icons perform the following functions. The fourth icon  allows the user to zoom out one level (from the center, no rubber band box required) while the fifth icon  zooms the map in one level. The sixth icon  minimizes the tool while the seventh icon  closes the tool.

	<i>One additional note...the small vertical panel just right of the “Crime by Area” and “Crime by Address” tool is a widget or tool manager that allows the user to control the visibility of the tool and placement of tool windows. By clicking on the top button (the one with the two arrows pointing to the right), the tool windows will disappear from view. At this point, the top button on the widget manager will change to an two arrows pointing to the left. Clicking on this button will bring the tool windows back. The up and down buttons can be used to scroll tool windows up and down when multiple tools are open..</i>
---	--

Conditional Search

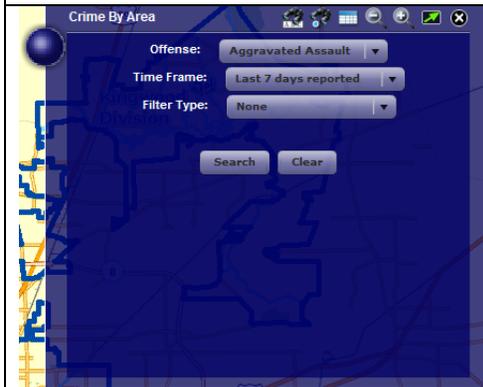
To perform the default Conditional Search, the user uses the dropdown lists to select an offense type and time frame (Last day reported, Last 7 days reported, and Last 30 days reported). The user can optionally select an area filter. The area filter restricts the search to a particular Police Division, Police District, Police Beat, Zip Code, City Council District, or Super Neighborhood.

Once a filter type is selected, a new dropdown list will appear with the available filter values for the selected filter type. The user selects the filter value (provided the Filter Type is not set to “None”). To perform the search, the user then clicks on the Search button. The tool will switch to the Results pane, showing a “Loading” graphic while the search is being performed, and the results are being formatted to fit into the Results pane.

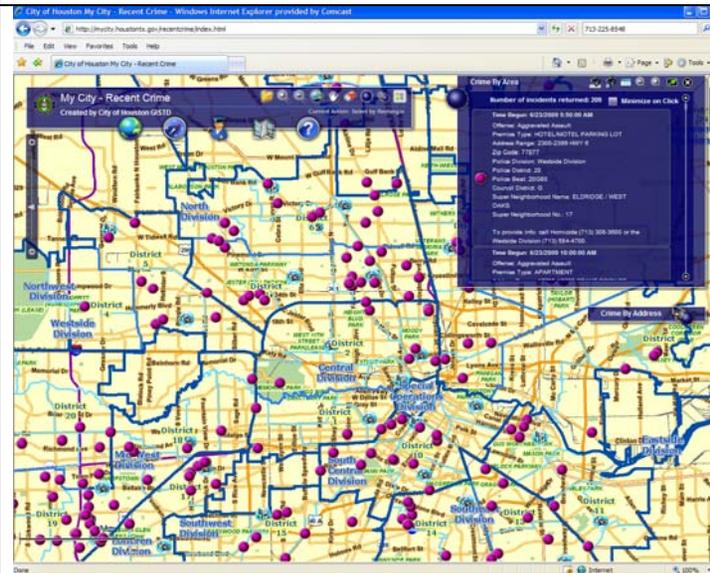
Users are **required** to use a filter when the time frame value “Last 30 days reported” has been selected. This is because of the potentially very large number of results that can be returned, especially for non-violent offense types such as burglary, theft, and auto theft. It can take several minutes to generate and format the search results when a filter is not used, so the user may need to exercise patience when searching out crime for the longer time frames, especially for the non-violent offense types.

The next set of figures summarizes the process of searching “Crime by Area” using the Conditional Search and Results panes.

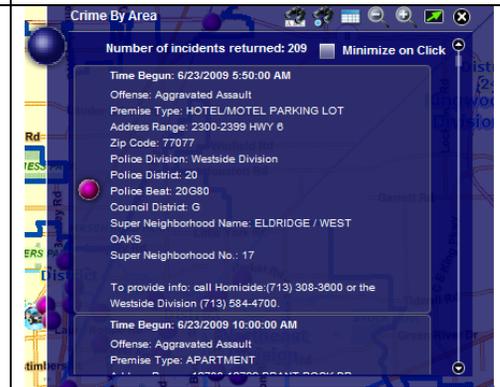
Select the desired search parameters and then click the Search button.



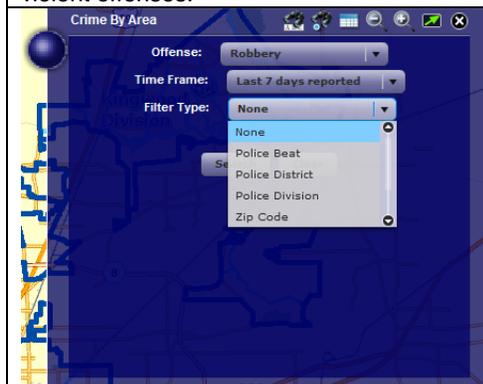
If any incidents satisfy the search criteria, they will draw on the map. The results will be summarized in a grid within the Results pane. By mousing over a grid row in the Results pane, the user can highlight an incident. Clicking on a grid row in the Result pane will zoom the map to the area of the incident and highlight it. If the current navigation mode is set to Pan/Re-center map, the user can also mouse over any incident to highlight and bring up an information window that provides the information on that incident.



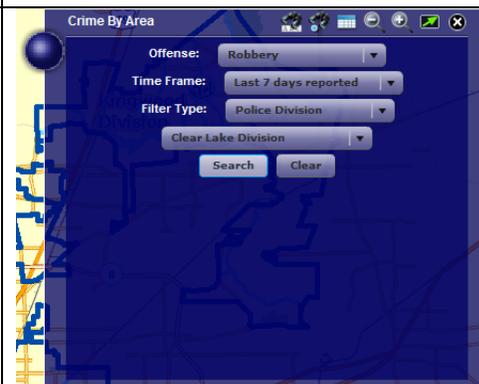
The type of information shown for each incident includes its date and the time the incident started, the offense type, premise type, the address range, zip code, police division, district, and beat, council district, and super neighborhood name and number.



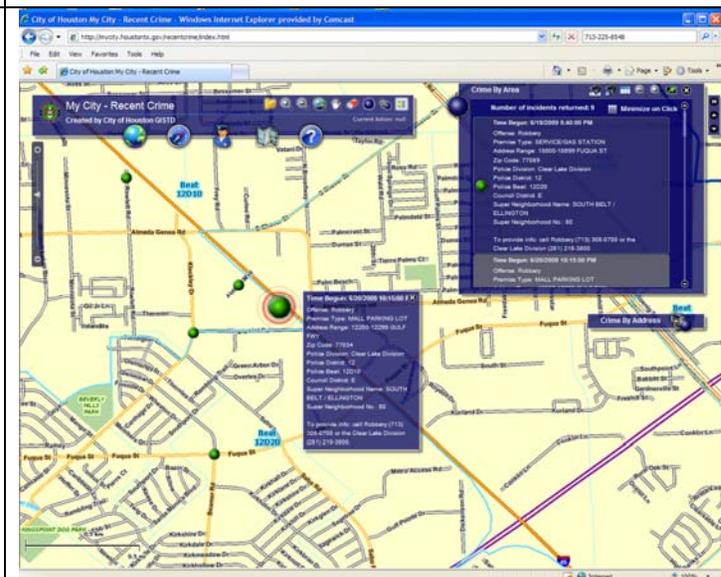
It is recommended the user limit the area searched using a filter, especially when searching out longer time frames for non-violent offenses.



In this example, the user has opted to limit the search to robberies occurring within HPD's Clear Lake Division for the last 7 days reported.



Note that an information window will pop up next to a highlight incident when highlights or zooms to and highlights an incident.



Graphical Search

The Graphical Search pane provides the ability to freehand draw either a rectangle or polygon to select offenses that fall within the user-drawn area.

Click on the second  icon on the “Crime by Address” tool in order to switch to the Graphical Search pane. Select an offense type, using the dropdown list. Next, the user must select either the Search by Rectangle or Search by Polygon tool. Draw either a rectangle by click-dragging a rubber band box over the map or else draw a polygon by clicking multiple times on the map to specify the area of the polygon. Close or end the polygon with a double click. Once the rectangle or polygon shape has been completed, the search tool will attempt to locate incidents of the selected type that fall within the user-drawn feature. Any located incidents will again be summarized in the Results pane. The user highlight or zoom to and highlight incidents the same ways as were possible with the Conditional Search process.

Clicking on the “Trash Can” icon  next to the “Select by Polygon” tool in the Graphical Search pane will clear the selected results from both the map and the Results pane listing.

Crime by Address Tool

The Crime by Address tool allows users to search out incidents that fall within a given distance of an address.

When the application first loads, the “Crime By Address” search tool appears in its minimized state in the top right portion of the browser window, just below the “Crime by Area” search tool.



To use it, maximize the tool by clicking on mailbox/blue sphere icon. The tool will open up at a Conditional Search pane (there is no Graphical Search pane option for the “Crime by Address” tool). The Conditional Search pane is represented by the mailbox icon  in the row of icons on the top right portion of the tool

A maximized window titled "Crime By Address" is shown. The window has a dark blue header with the text "Crime By Address" in white. To the right of the text is a small icon of a mailbox with a blue sphere on top. The background of the window is a light blue map. The form contains the following fields:

- Address:
- Zip:
- City:
- State:
- Offense:
- Time Frame:
- Buffer Distance (mi):

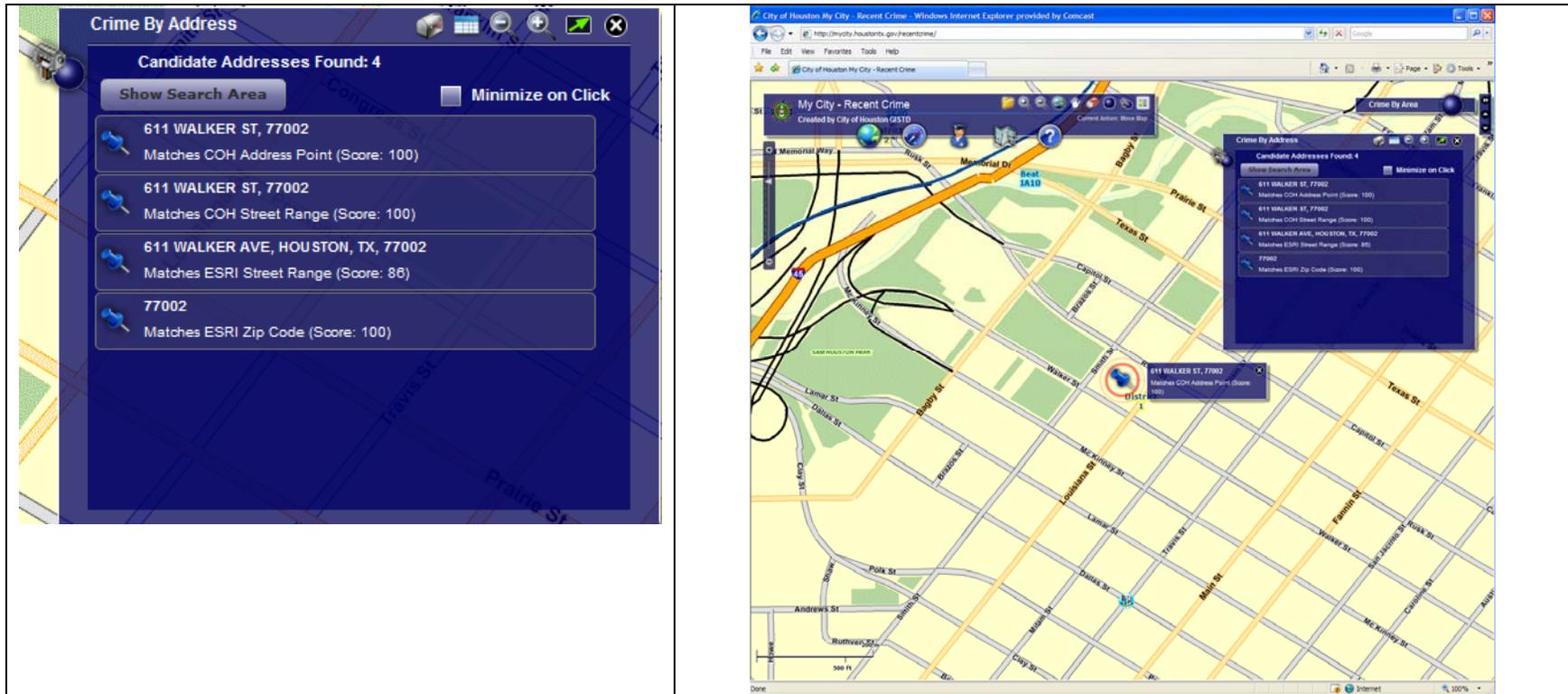
At the bottom of the form are two buttons: "Locate" and "Clear".

Enter an address and/or zip code. As a rule, one can leave the City and State dropdown lists as they are. Select an offense type, time frame, and also select a buffer distance. This distance reflects the radius of the search circle around the address for which incidents will be selected. When all items have been filled in or selected, click the Locate button.

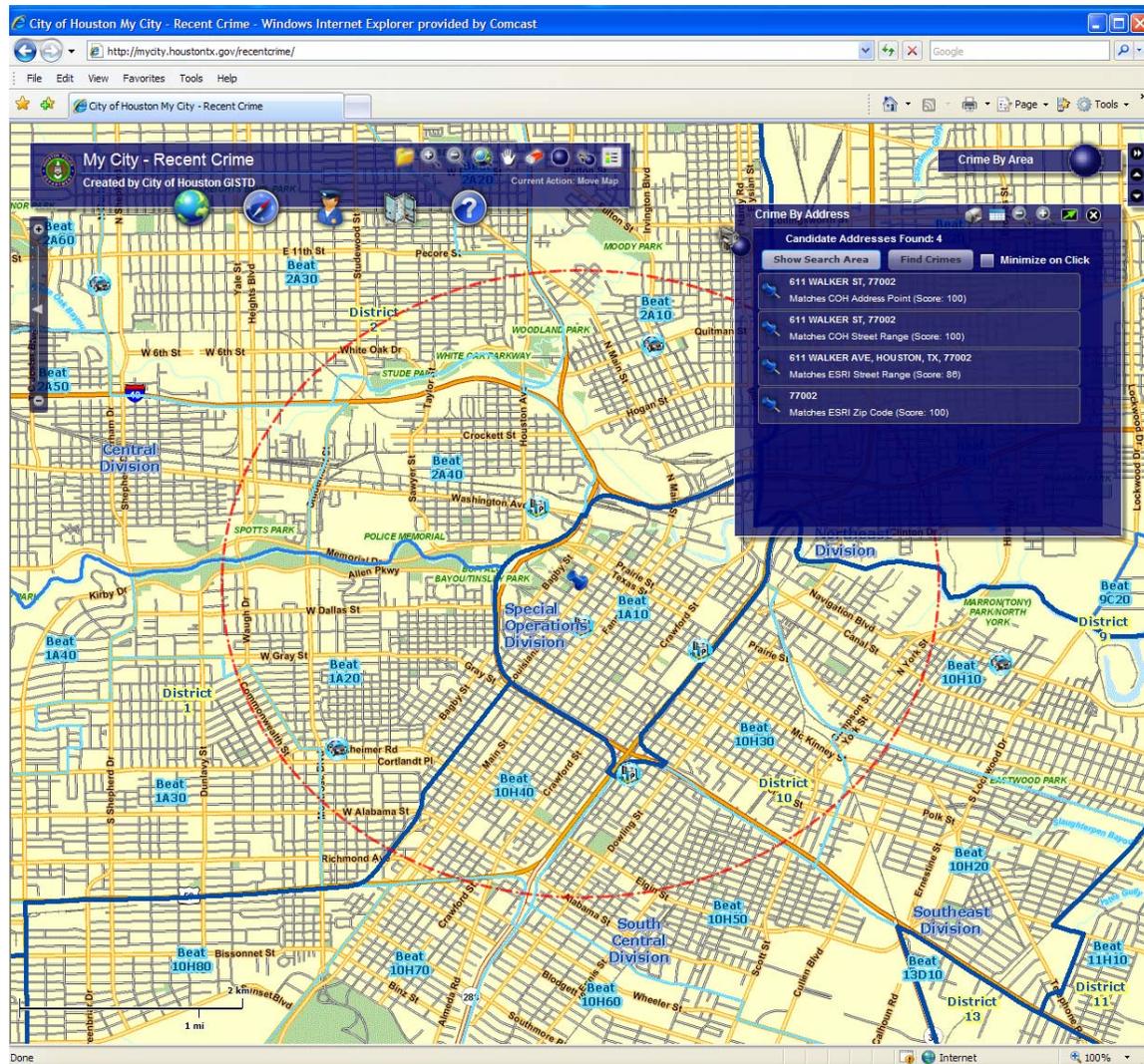


It is possible to get more than one candidate for an address. Hence, the first results the user will see will be the returned address candidates for the search. These will be shown in the Results pane. The Results pane can be accessed at any time by clicking on the  icon on the top right border menu of the tool.

Candidate addresses will be shown in the result pane. The user can highlight and/or zoom to candidate addresses to review them. When the user identifies the candidate he/she wishes to use, that candidate can be selected using a click on the candidate row in the results grid. By default, the first candidate will be selected if the user does not click on an alternate row.

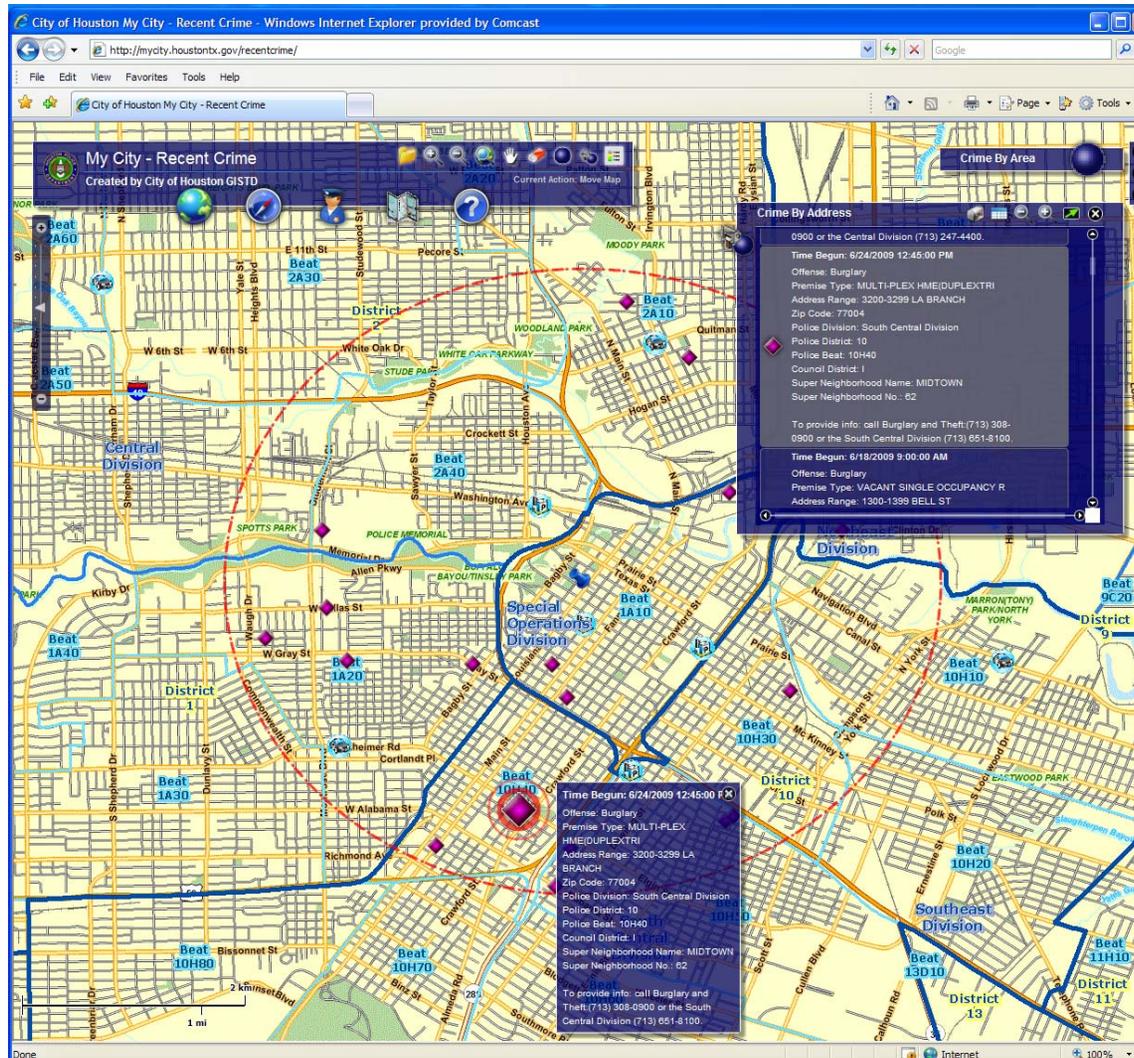


Once the candidate is selected, the user show click on the Show Search Area button to set the address and to generate the search circle. This circle will show up with a red dashed-line boundary. The map will zoom out to a scale to allow the entire circle to be seen.



The user can then click on the Find Crimes button to search out incidents that occurred within the circle for the offense type and time frame selected by the user.

Any results will be listed in a grid in the Results Pane in the same manner they are listed in the “Crime By Area” tool. The user can highlight and/or zoom to specific incidents. Highlight an incident by mousing over one of the results rows in the Results pane. Zoom to and highlight an incident by clicking on one of the row. Alternatively, make sure the navigation mode is Pan/Re-center map, then mouse over one of the incidents shown on the map. In all cases, an information window will appear next to the selected incident.



The user can return to the Conditional Search pane by clicking on the mailbox icon . If the same address and search radius is to be used, the user can simply change offense type and time frame as desired, then click on the Results pane icon  and click the Find Crimes button again to re-execute the search with the new offense and time frame choices. If the address is changed, or if the buffer radius is changed, the user will have to go through the entire process of reviewing address candidates, selecting one, and setting the search area before he/she can click on the Find Crimes button to execute the new search.

Appendix A: Disclaimer

The Houston Police Department's Geographic Information System presents an interactive crime map showing locations of crimes and corresponding data tables with lists of dates, places, and types of crimes for the current period. The Crime Data represents basic/general data of incidents based on the FBI's Uniform Crime Report coding system. The data may or may not have been screened through the Houston Police Department's quality control process and therefore may reflect:

- Information not yet verified by further investigation
- Information that may include mechanical or human error
- Preliminary crime classifications that may be changed at a later date based upon further investigation

Neither the City of Houston nor the Houston Police Department guarantee (either express or implied) the accuracy, completeness, timeliness, or correct sequencing of the Crime Data. The City of Houston and the Houston Police Department shall have no liability for any error or omission, or for the use of, or the results obtained from the use of the Crime Data. In addition, the City of Houston and the Houston Police Department caution against using the Crime Data to make decisions/comparisons regarding the safety of or the amount of crime occurring in a particular area. When reviewing the Crime Data, the site user should consider that:

- The information represents only police services where a report was made and does not include other calls for police service
- The information does not reflect or certify "safe" or "unsafe" areas
- Areas with a high volume of foot traffic, vehicle traffic, and if densely populated may have more reported crimes than other areas. This does not necessarily mean more crime occurs there, but that more crime is reported there.
- Results displayed are not distinguished as attempted or completed crimes.
- Users should not rely on nor make decisions or comparisons based solely on the data offered on this web site; but should conduct additional independent verification and due diligence
- The information will sometimes reflect where the crime was reported versus where the crime occurred

The use of the Crime Data indicates the site user's unconditional acceptance of all risks associated with the use of the Crime Data